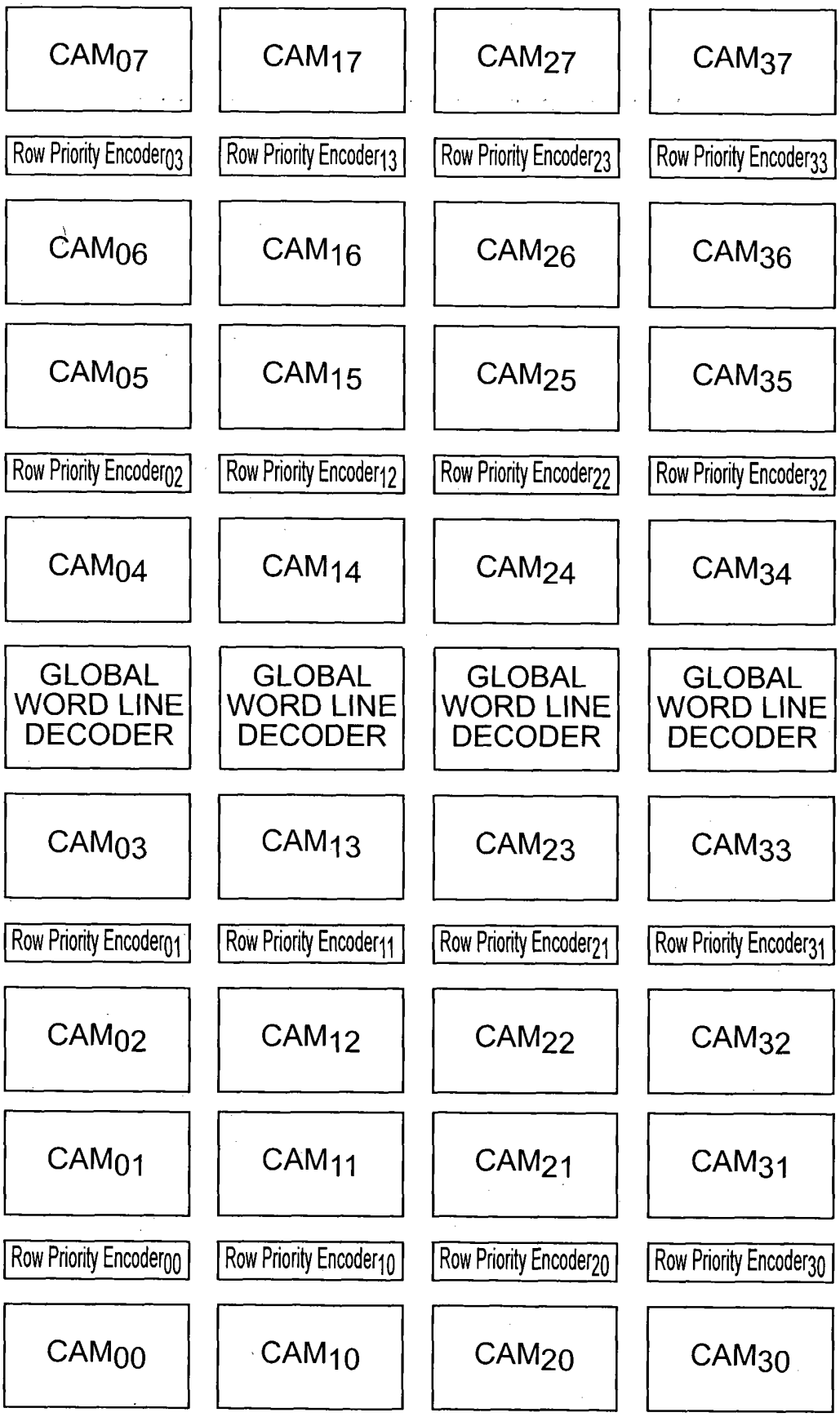

FIG. 1.
(PRIOR ART)

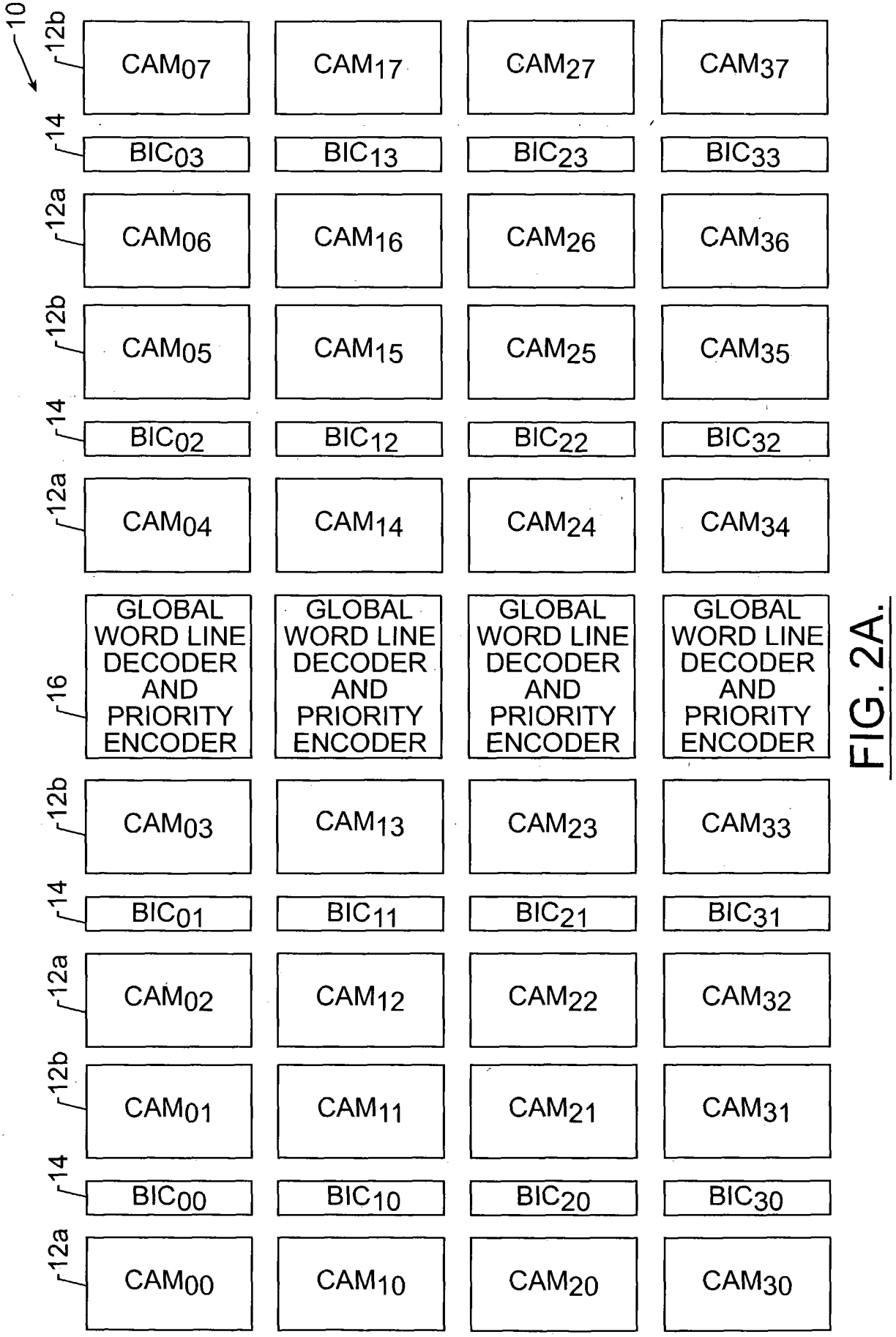
10
12b
CAM07
CAM17
CAM27
CAM37
14
BIC03
BIC13
BIC23
BIC33
12a
CAM06
CAM16
CAM26
CAM36
12b
CAM05
CAM15
CAM25
CAM35
14
BIC02
BIC12
BIC22
BIC32
12a
CAM04
CAM14
CAM24
CAM34
16
GLOBAL WORD LINE DECODER AND PRIORITY ENCODER
GLOBAL WORD LINE DECODER AND PRIORITY ENCODER
GLOBAL WORD LINE DECODER AND PRIORITY ENCODER
GLOBAL WORD LINE DECODER AND PRIORITY ENCODER
12b
CAM03
CAM13
CAM23
CAM33
14
BIC01
BIC11
BIC21
BIC31
12a
CAM02
CAM12
CAM22
CAM32
12b
CAM01
CAM11
CAM21
CAM31
14
BIC00
BIC10
BIC20
BIC30
12a
CAM00
CAM10
CAM20
CAM30

FIG. 2A.

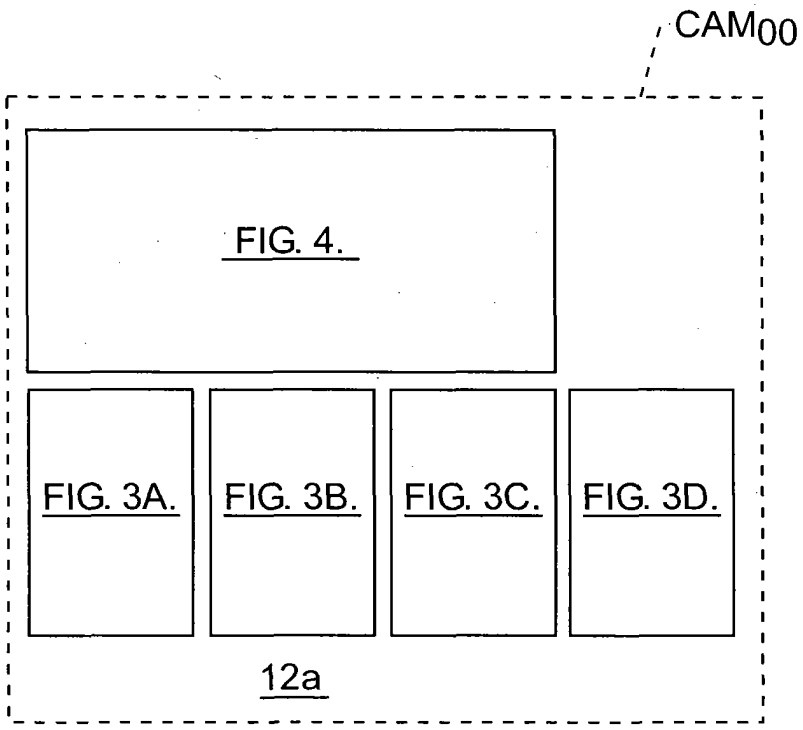

FIG. 2B.

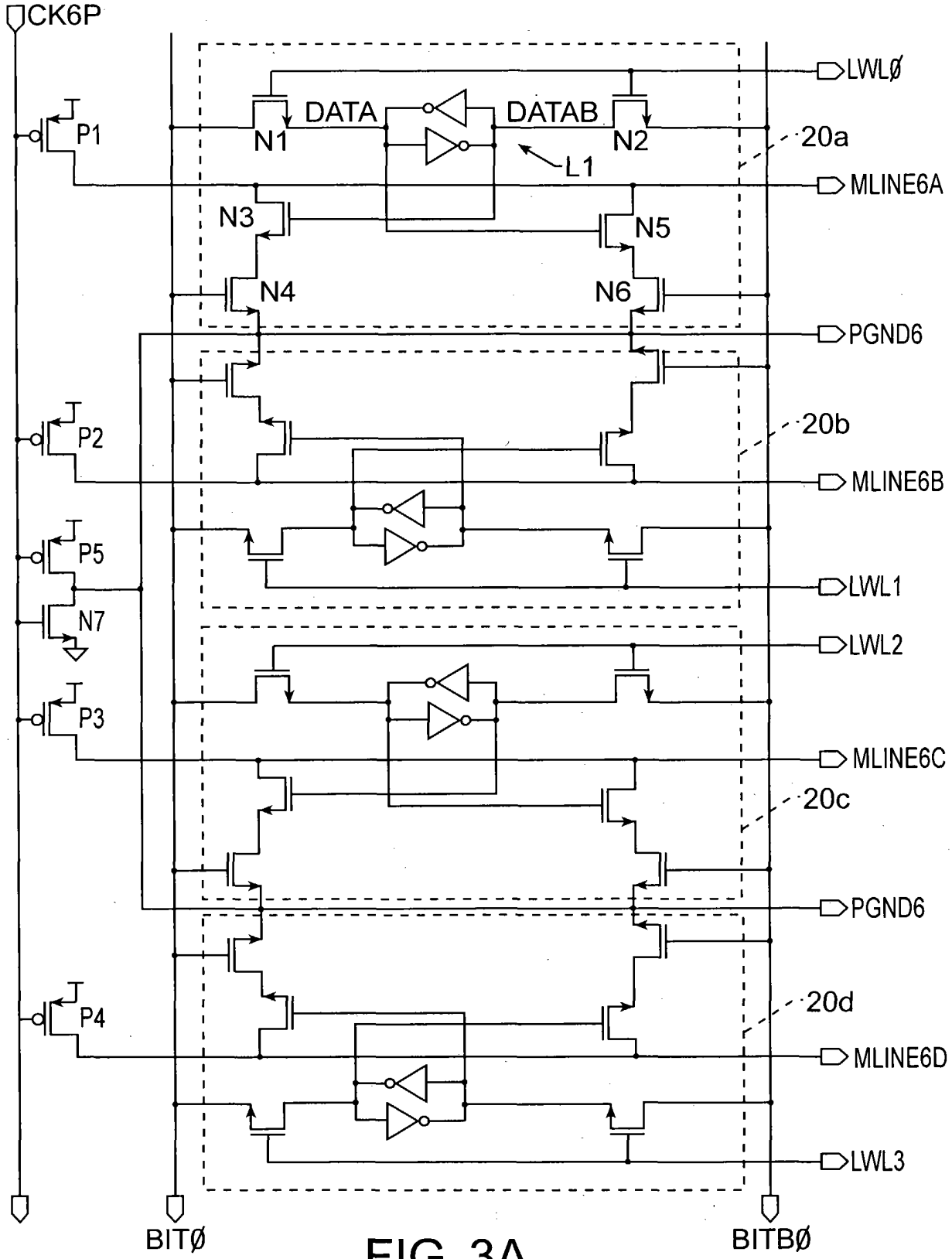
CK6P
LWLØ
P1
DATA
DATAB
N1
N2
L1
20a
MLINE6A
N3
N5
N4
N6
PGND6
P2
20b
MLINE6B
P5
LWL1
N7
LWL2
P3
MLINE6C
20c
PGND6
P4
20d
MLINE6D
LWL3
BITØ
BITBØ

FIG. 3A.

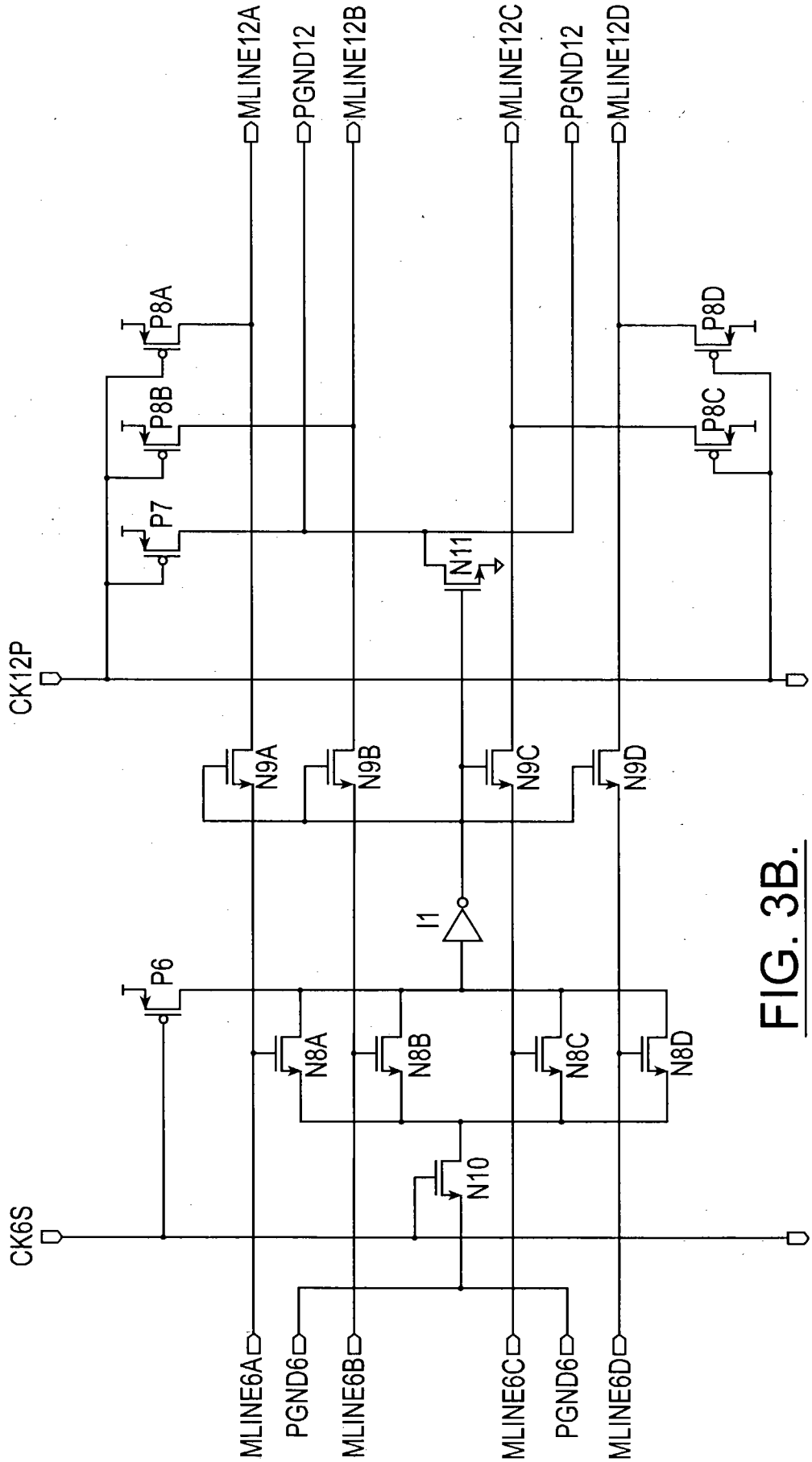
MLINE12A
PGND12
MLINE12B
MLINE12C
PGND12
MLINE12D
P8A
P8B
P7
P8D
P8C
N11
CK12P
N9A
N9B
N9C
N9D
I1
P6
N8A
N8B
N8C
N8D
N10
CK6S
MLINE6A
PGND6
MLINE6B
MLINE6C
PGND6
MLINE6D

FIG. 3B.

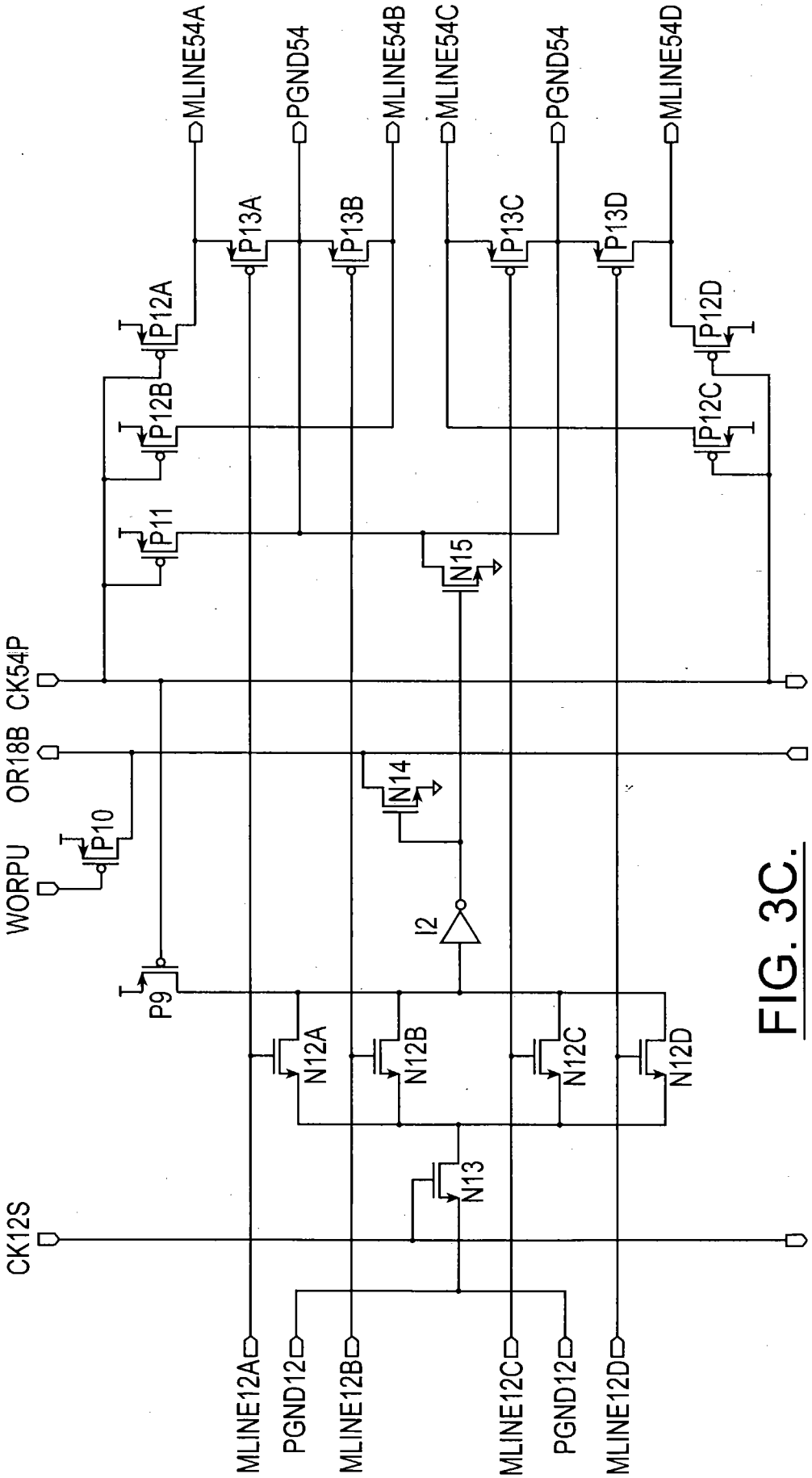
MLINE54A
PGND54
MLINE54B
MLINE54C
PGND54
MLINE54D
P13A
P13B
P13C
P13D
P12A
P12B
P12C
P12D
P11
N15
CK54P
OR18B
N14
WORPU
P10
I2
P9
N12A
N12B
N12C
N12D
N13
CK12S
MLINE12A
PGND12
MLINE12B
MLINE12C
PGND12
MLINE12D

FIG. 3C.

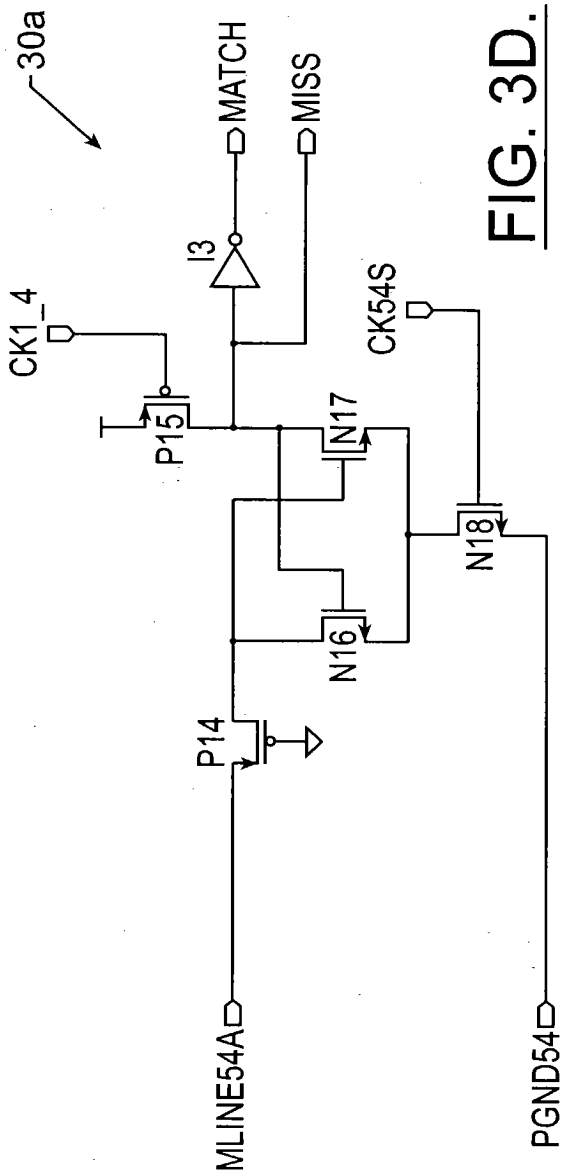
30a
MATCH
MISS
I3
CK1_4
CK54S
P15
N17
N18
N16
P14
MLINE54A
PGND54

FIG. 3D.

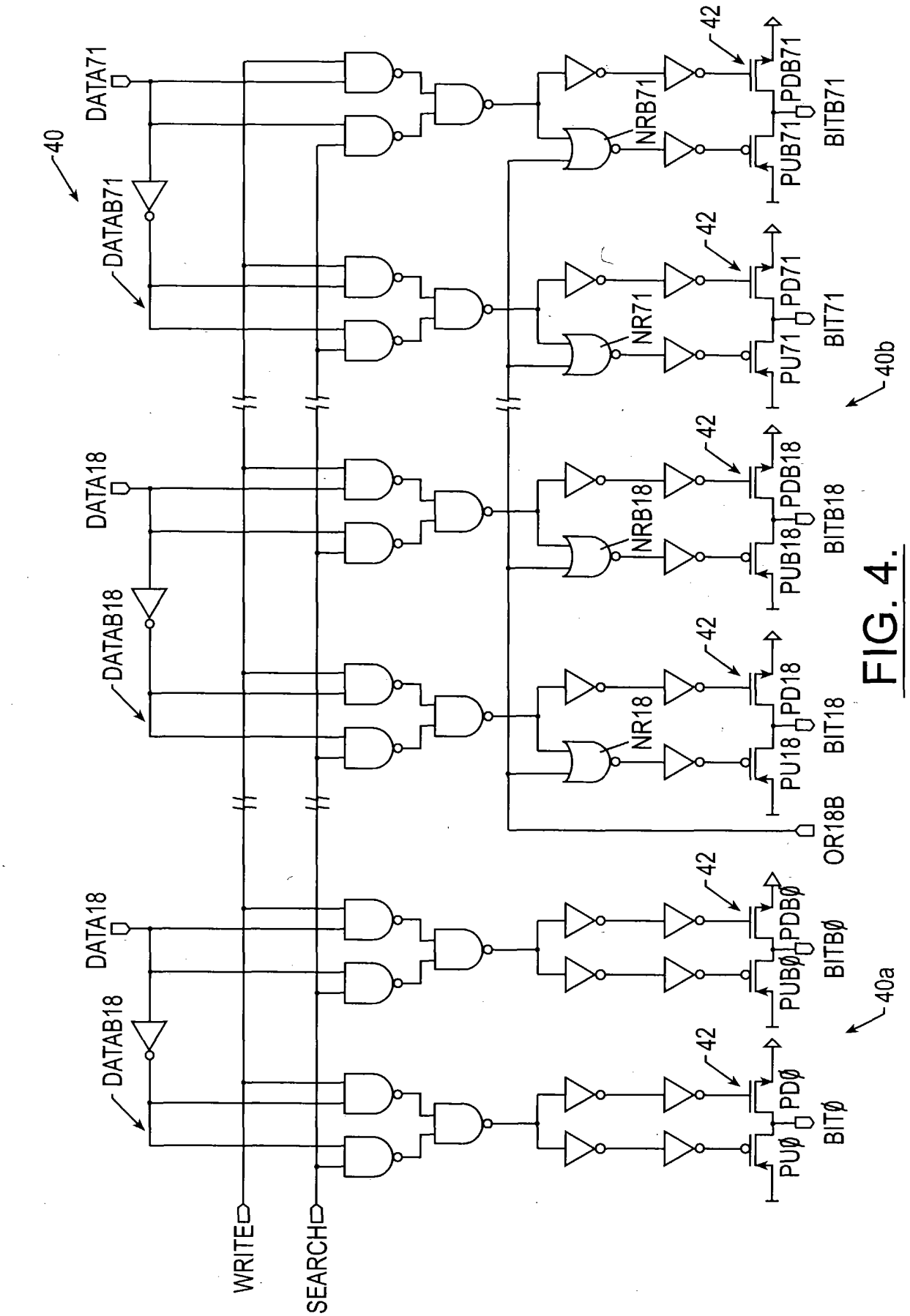
40
DATA71
DATAB71
DATA18
DATAB18
DATA18
DATAB18
WRITE
SEARCH
42
NRB71
PUB71
PDB71
BITB71
NR71
PU71
PD71
BIT71
40b
NRB18
PUB18
PDB18
BITB18
NR18
PU18
PD18
BIT18
OR18B
PUBØ
PDBØ
BITBØ
PUØ
PDØ
BITØ
40a

FIG. 4.

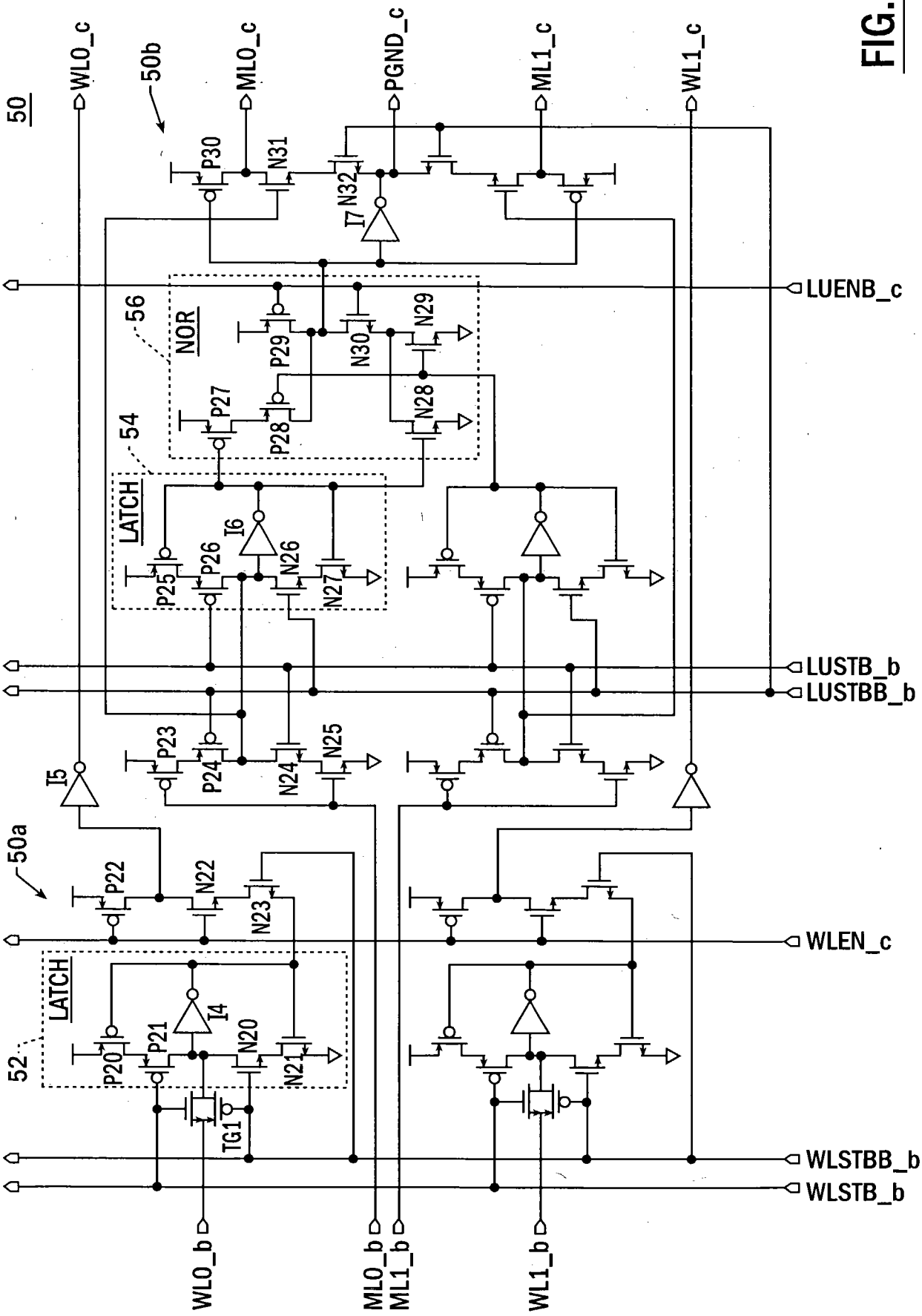
50
WL0_c
50b
ML0_c
PGND_c
ML1_c
WL1_c
P30
N31
N32
I7
LUENB_c
56
NOR
P29
N30
N29
P27
P28
N28
54
LATCH
I6
P25
P26
N26
N27
LUSTB_b
LUSTBB_b
I5
P23
P24
N24
N25
50a
P22
N22
N23
WLEN_c
LATCH
52
I4
P20
P21
N20
N21
TG1
WLSTBB_b
WLSTB_b
WL0_b
ML0_b
ML1_b
WL1_b

FIG. 5

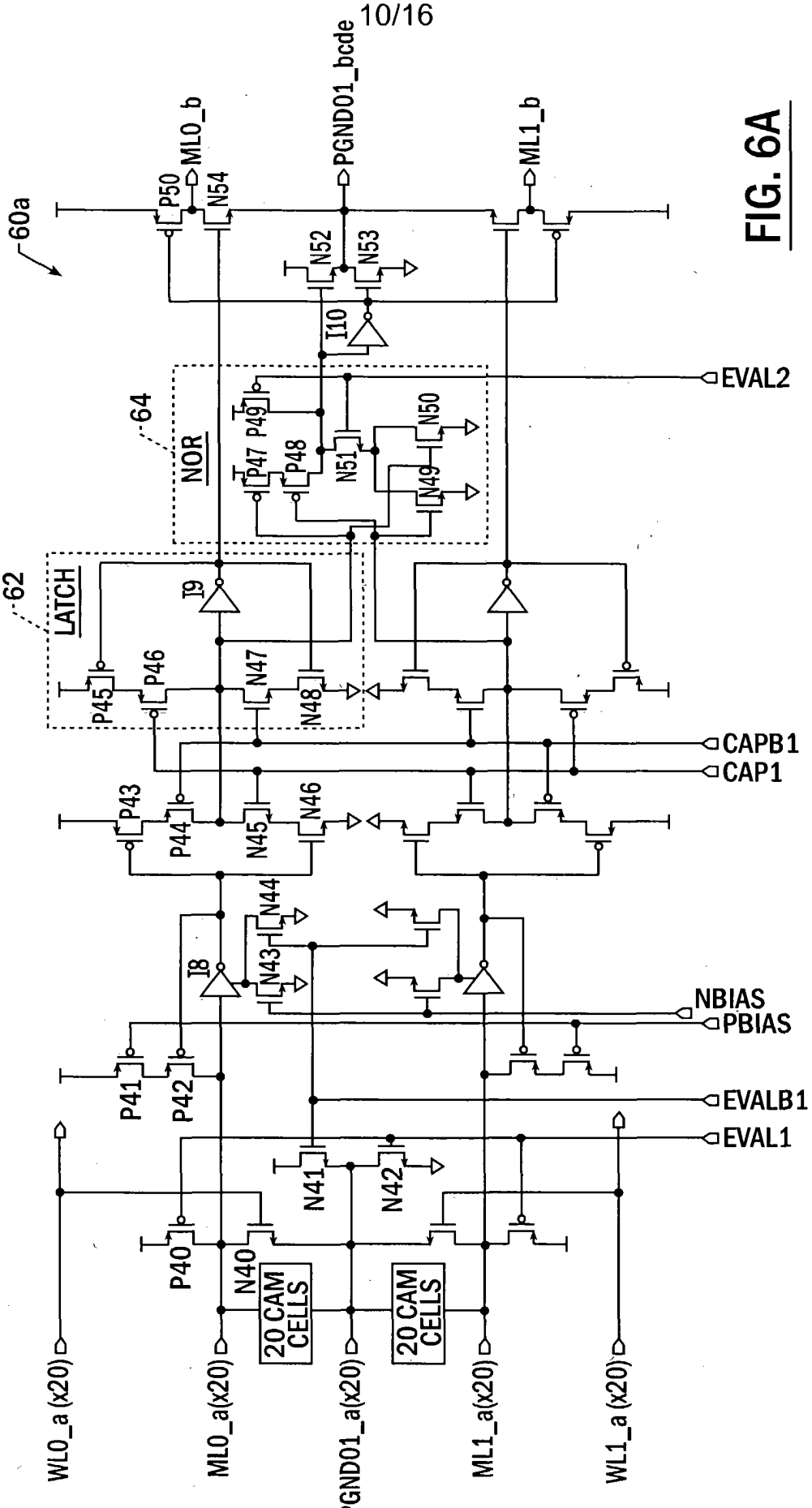
60a
ML0_b
PGND01_bcde
ML1_b
P50
N54
N52
N53
I10
EVAL2
64
NOR
P49
P47
P48
N51
N50
N49
62
LATCH
I9
P45
P46
N47
N48
CAPB1
CAP1
P43
P44
N45
N46
N44
N43
I8
NBIAS
PBIAS
P41
P42
EVALB1
EVAL1
N41
N42
P40
N40
20 CAM CELLS
20 CAM CELLS
WL0_a (x20)
ML0_a(x20)
PGND01_a(x20)
ML1_a(x20)
WL1_a (x20)

FIG. 6A

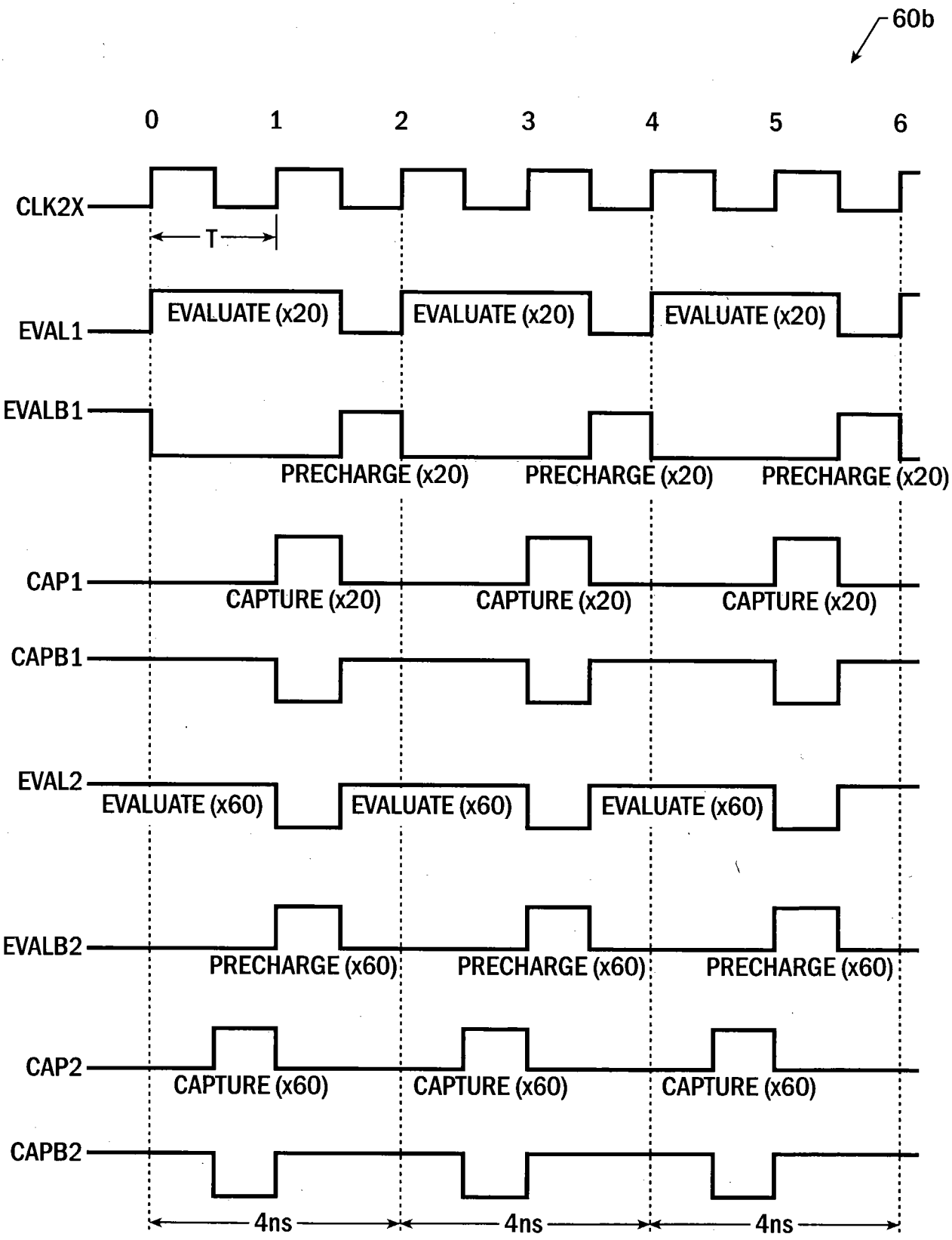
60b
0
1
2
3
4
5
6
CLK2X
T
EVAL1
EVALUATE (x20)
EVALUATE (x20)
EVALUATE (x20)
EVALB1
PRECHARGE (x20)
PRECHARGE (x20)
PRECHARGE (x20)
CAP1
CAPTURE (x20)
CAPTURE (x20)
CAPTURE (x20)
CAPB1
EVAL2
EVALUATE (x60)
EVALUATE (x60)
EVALUATE (x60)
EVALB2
PRECHARGE (x60)
PRECHARGE (x60)
PRECHARGE (x60)
CAP2
CAPTURE (x60)
CAPTURE (x60)
CAPTURE (x60)
CAPB2
4ns
4ns
4ns

FIG. 6B

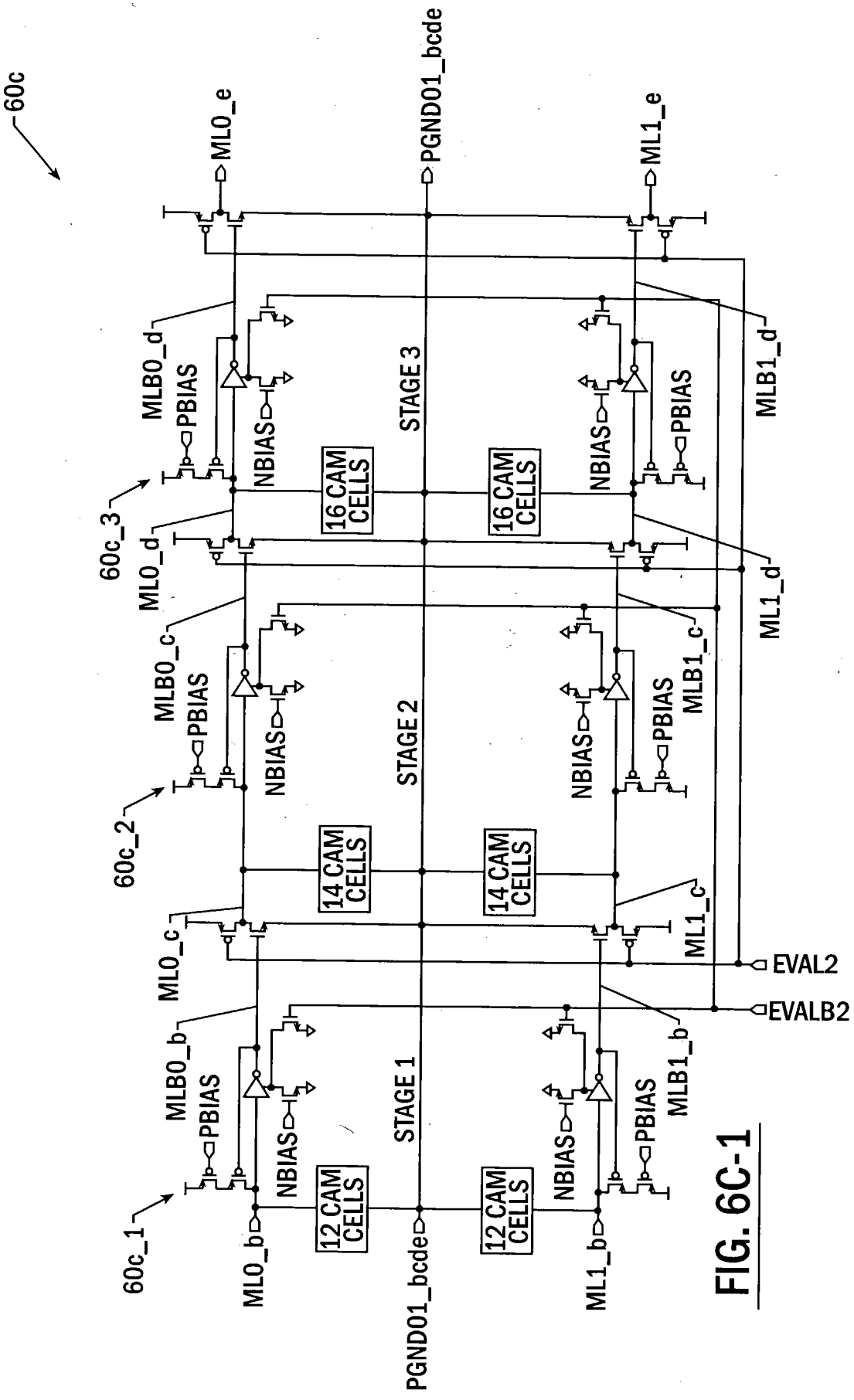
60c
ML0_e
PGND01_bcde
ML1_e
MLB0_d
PBIAS
NBIAS
16 CAM CELLS
STAGE 3
16 CAM CELLS
NBIAS
PBIAS
MLB1_d
60c_3
ML0_d
ML1_d
MLB0_c
PBIAS
NBIAS
STAGE 2
NBIAS
PBIAS
MLB1_c
60c_2
14 CAM CELLS
14 CAM CELLS
ML0_c
ML1_c
EVAL2
EVALB2
MLB0_b
PBIAS
NBIAS
STAGE 1
NBIAS
PBIAS
MLB1_b
60c_1
12 CAM CELLS
12 CAM CELLS
ML0_b
PGND01_bcde
ML1_b

FIG. 6C-1

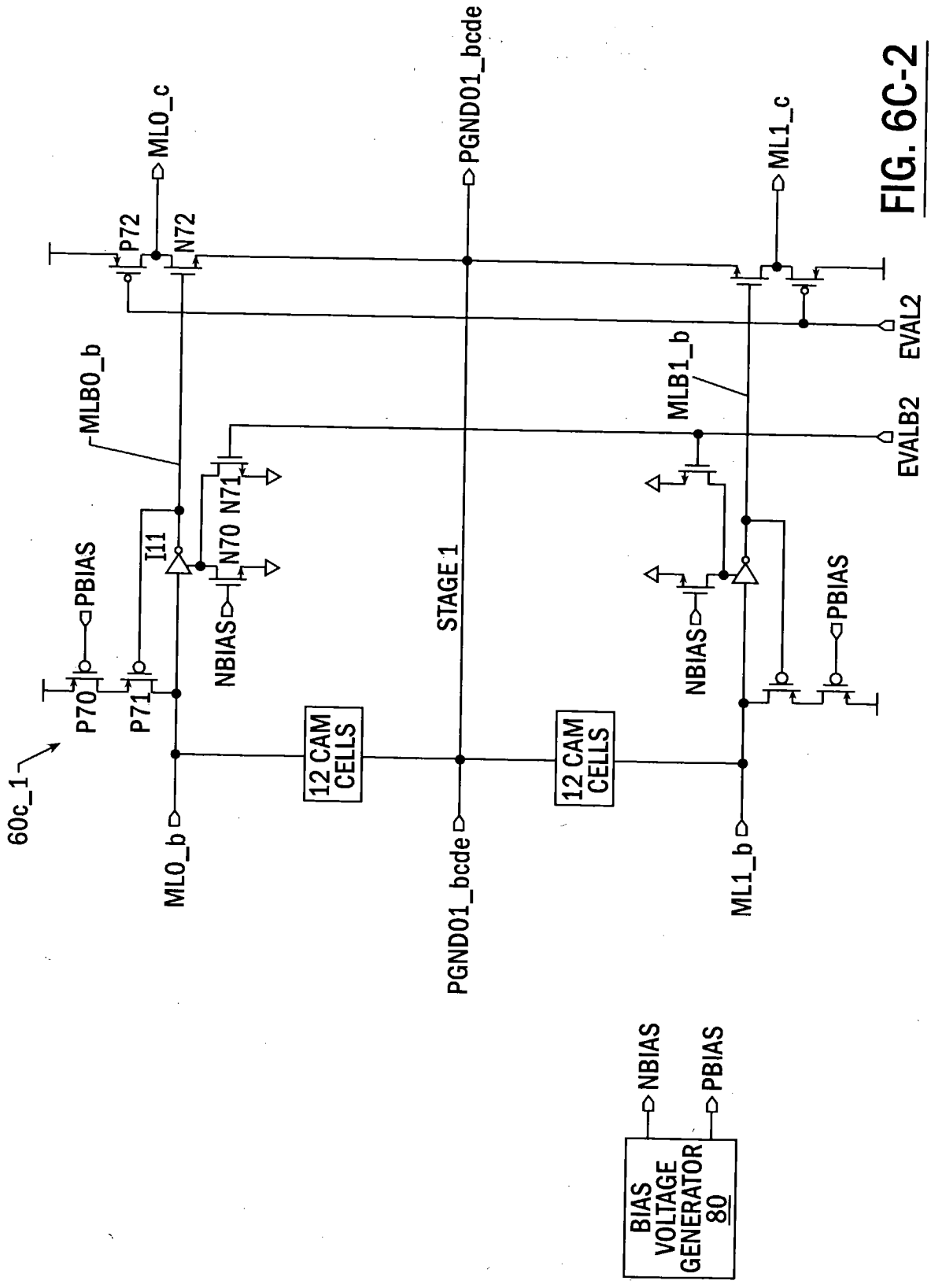
60c_1
P70
P71
PBIAS
I11
N70
N71
NBIAS
MLB0_b
MLO_c
P72
N72
MLO_b
12 CAM CELLS
STAGE 1
PGND01_bcde
MLB1_b
ML1_c
EVAL2
EVALB2
ML1_b
BIAS VOLTAGE GENERATOR 80
NBIAS
PBIAS

FIG. 6C-2

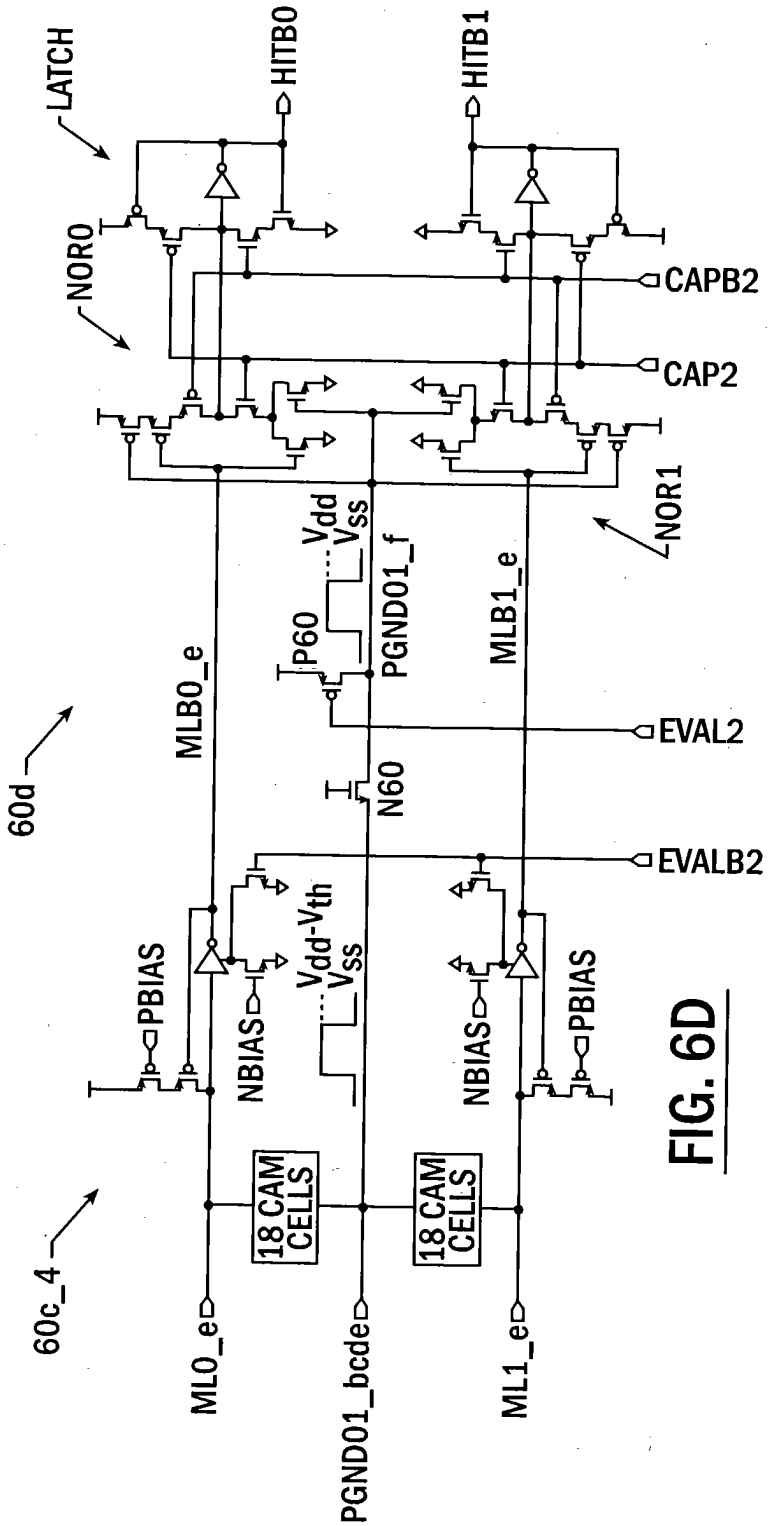
LATCH
HITB0
HITB1
NOR0
CAPB2
CAP2
NOR1
Vdd
Vss
PGND01_f
P60
MLB1_e
MLB0_e
EVAL2
N60
EVALB2
60d
PBIAS
NBIAS
Vdd-Vth
Vss
NBIAS
PBIAS
18 CAM CELLS
18 CAM CELLS
60c_4
ML0_e
PGND01_bcde
ML1_e

FIG. 6D

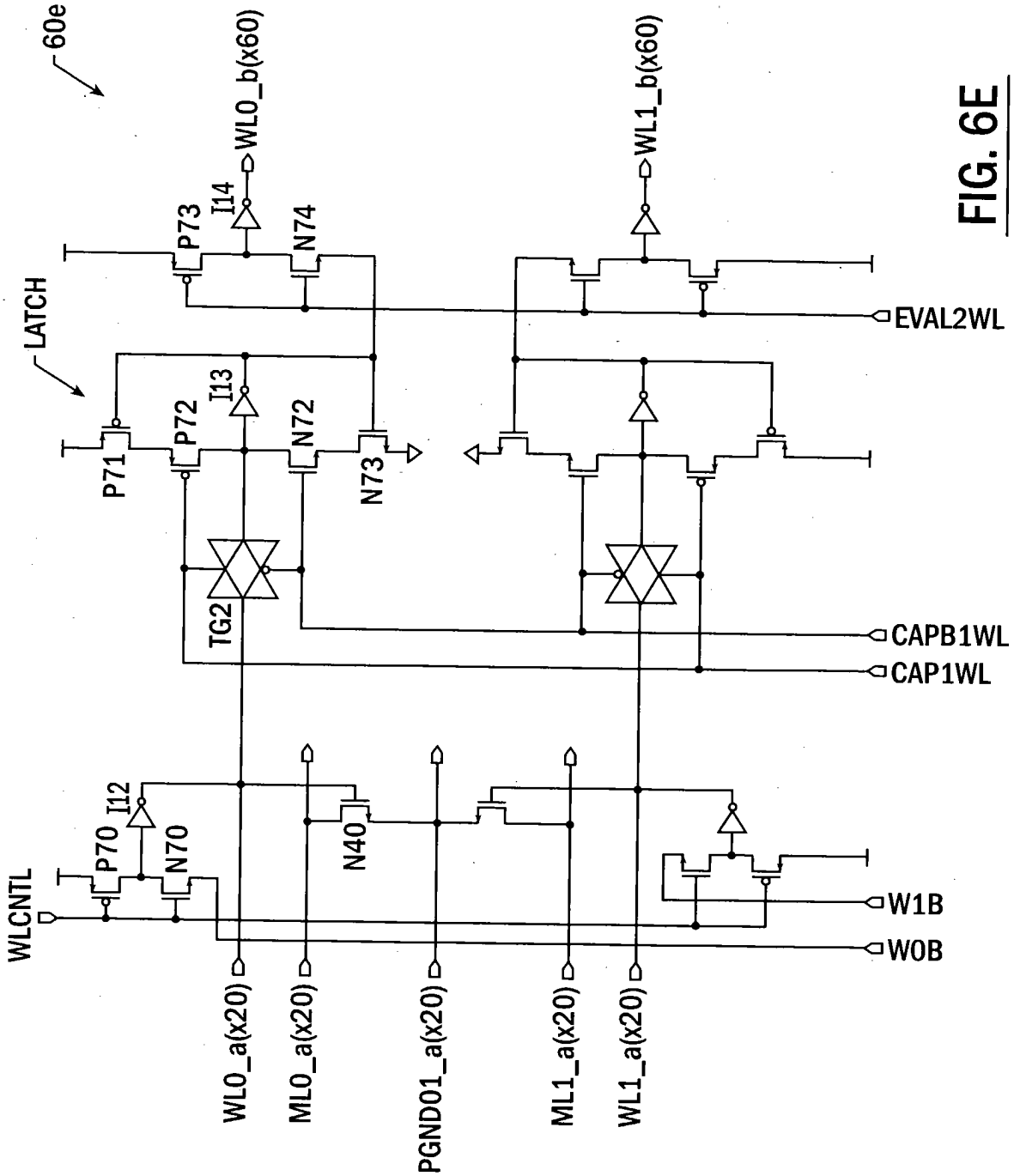
60e
LATCH
WL0_b(x60)
WL1_b(x60)
I14
P73
N74
EVAL2WL
I13
P72
N72
P71
N73
TG2
CAPB1WL
CAP1WL
I12
P70
N70
N40
WLCNTL
W1B
W0B
WL0_a(x20)
ML0_a(x20)
PGND01_a(x20)
ML1_a(x20)
WL1_a(x20)

FIG. 6E

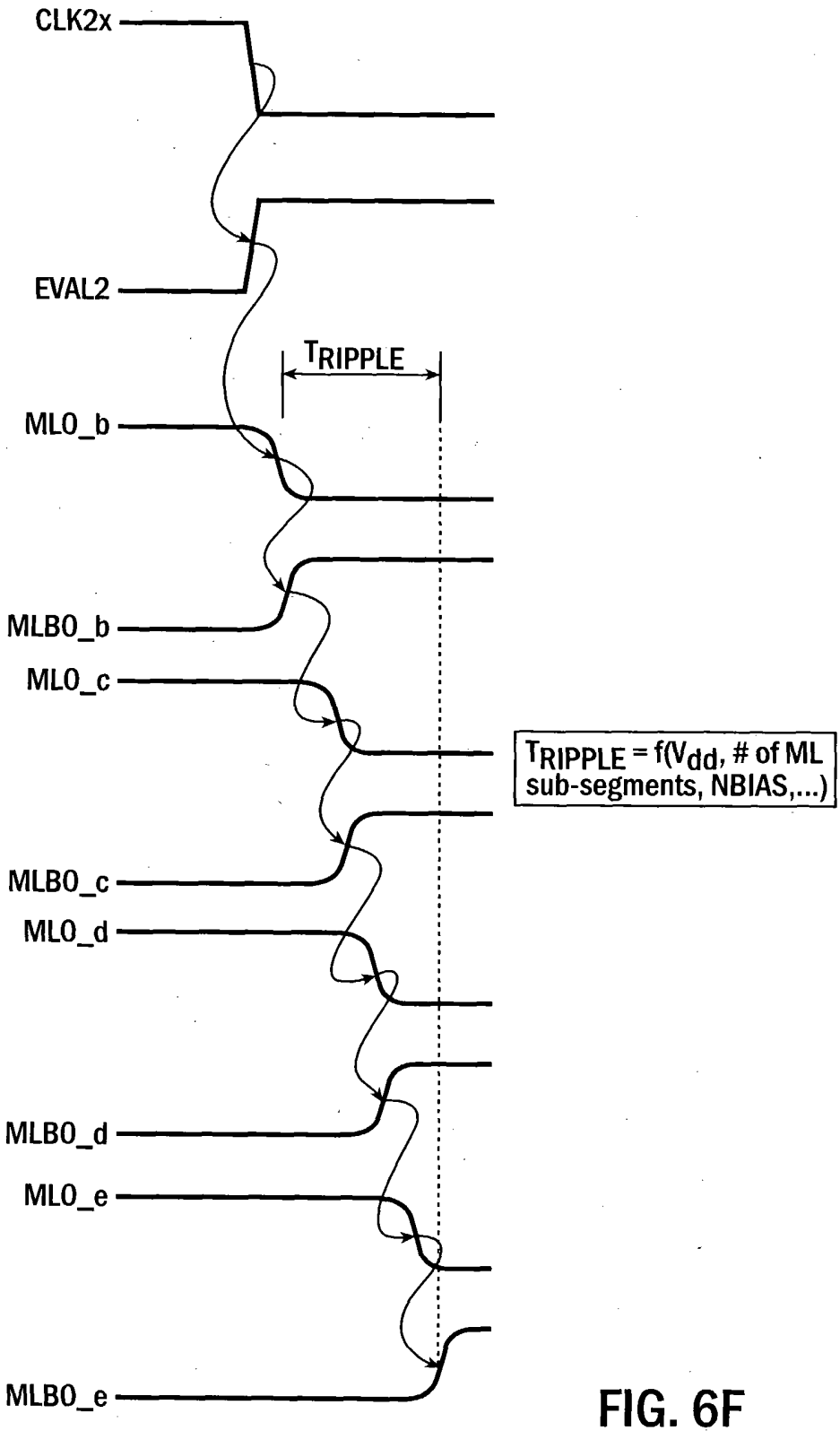
CLK2x
EVAL2
TRIPPLE
ML0_b
MLB0_b
ML0_c
TRIPPLE = f(Vdd, # of ML sub-segments, NBIAS,...)
MLB0_c
ML0_d
MLB0_d
ML0_e
MLB0_e

FIG. 6F